

To: Sylvia Hamilton via email

Date: July 8, 2005

Subject: **June 30, 2005 Meeting Minutes**

A meeting of the Perchlorate Community Advisory Group was held at the San Martin Lions Club, 12415 Murphy Avenue, San Martin, on June 30th, 2005 at 7 pm.

I) Pledge: The Chair, Ms. Sylvia Hamilton, led the Pledge.

II) Administrative Items:

- A) Introductions
- B) Attendee Sign-in sheets
- C) No additional agenda items
- D) June 3rd meetings minutes approved as written

III) Presentations/Discussion Topics

A) Llagas Subbasin Hydrogeology Presentation

1. Subbasin Conceptual Hydrogeologic Model (Mike Tarazski)

- (a) **A conceptual model** is a process-oriented tool used to comprehend complex systems. Elements of the model include geology, hydrogeology, and groundwater quality and flow directions. Its main purposes are to help plan investigations, evaluate test results, and maximize the effect of remediation.
- (b) **Geology** is the study of the planet Earth, which includes the materials of which it is made, the processes that act on these materials, and the history of the planet and its life forms. Geology is the foundation upon which everything is constructed. It involves all scales of study such as a specific site, a local area, or a region. Geology includes an evaluation of shallow soils (farming and foundations for constructions), deeper sediments, and rocks. The mountains around us erode to fill valleys, which form groundwater basins.
- (c) **Rocks and soil** are important because over geologic time, those rocks are moved from mountains into valleys. This erosion of mountains into valleys creates layers of soil (stratigraphy). Complex layering results from complex erosion processes. A conceptual model of the basin is developed to describe these processes.
- (d) **Hydrogeologic model of Llagas Valley:** The valley is filled with a complex series of sediments deposited in coalescing alluvial fans along the valley margins. The fans contain a mix of coarse and fine grain soils near the source (the narrow part of the fan), as well as clayey soils along the margins of the fan. In addition to the alluvial fans, the valley has stream beds along the center, which consist of coarse grain sediments and allow for preferential groundwater flow.

- (e) **Geology** is complex because each layer of sediment that is deposited can be eroded away at a later time and different geologic processes are happening at different times and places. Also, within narrow valleys like the Llagas, alluvial fans coalesce and sediments are interconnected. Layers of coarse grain sediment become continuous aquifers.
- (f) **Hydrogeology** is derived from the word hydro, which means water, and geology, which means study of rocks and soil. Hydrogeology focuses on the study of subsurface waters with geologic aspects of surface water. These aspects include water resources, groundwater quality, water well production, and interaction of surface and subsurface waters.
- (g) **Geology and groundwater** are related because they each occur as a layer or layers underground. The groundwater moves slowly through aquifers and even more slowly through aquitards. Most of the Llagas Subbasin domestic wells are screened within the intermediate aquifer, which is about 100 to 300 feet below ground.
- (h) **Groundwater movement** is controlled by two factors, gradient (direction and magnitude) and hydraulic conductivity (ability of water to flow through the soil). Water is known to move very slowly at about a foot a day or less.
- (i) **Groundwater in Llagas** has cleaner coarse grain sediments along the axial center of the valley, which present themselves as a preferential pathway for groundwater movement. Regional groundwater movement is enhanced by recharge along the valley margins. Pumping is focused along the axial center of the valley and within the intermediate aquifer.
- (j) **Groundwater flow indicators** such as nitrate and perchlorate can be studied to evaluate the hydrogeologic conceptual model. Both chemicals have similar properties, in that they are very soluble in water and very mobile in water. The distribution of both appears to also be influenced by pumping wells. The nitrate studies in Llagas may provide insight for the current perchlorate investigation.
- (k) **Perchlorate distribution:** Laterally, perchlorate is distributed in the axial center of the valley where groundwater flow is the greatest. Vertically, perchlorate is evenly distributed within the intermediate aquifer, where pumping is the greatest.
- (l) **Summary:** The Llagas Subbasin conceptual hydrogeologic model is complex. Time, groundwater movement, and chemical properties impact perchlorate distribution within the intermediate aquifer.

Q: Is there water in the bedrock?

A: Yes, there is some water in bedrock, but it is generally in fractures in the rock. It is hard to predict groundwater movement in bedrock.

Q: What are the deepest levels where perchlorate has been found?

A: Do not know exact depth but most has been found between 100 to 300 feet.

Q: In the shallow aquifer is the water traveling at about 1 foot/day?

A: The current investigations will answer all those questions

2. Llagas Groundwater Subbasin Management (Thomas Mohr) – Mr. Mohr provided a brief summary of how the groundwater in the Llagas Subbasin is monitored and managed. The SCVWD is responsible for providing clean, safe, reliable water, maintaining healthy creek ecosystems, and flood protection. The groundwater management program includes recharge, monitoring, outreach which includes nitrate management, cleanup oversight liaison, and water supply planning. The recharge facilities in the San Martin area include Madrone channel, Main Avenue ponds, San Pedro ponds, and Church Avenue ponds. The District has retained records from more than 80 years of water level monitoring. Past data can assist with the analysis of the perchlorate issues, as well as other management issues.

B) RWQCB Update (David Athey)

1. Alternative Water CAO

- (a) **Bottled Water:** In April, the State Board supported Olin's petition to stop supplying water to well owners whose wells test at or below 6ppb, but is requiring 4 consecutive quarters of testing at or below 6 ppb before water can be discontinued. The Regional Board (RB) has to review each case before Olin can stop providing bottled water to anyone. No requests to-date have been sent to the RB. Originally, the RB required Olin to supply water to those residents with contamination levels above 4 ppb, which was the Action Level at that time. Since then OEHHA adopted a Public Health Goal of 6 ppb and the State Board based their decision on that level.
- (b) **Trend Analysis:** Mr. Athey reported that statistical analyses are being conducted for wells with a sufficient number of tests. If wells are below 6 ppb perchlorate for 4 quarters and the trend is decreasing or stable, Olin can request approval to discontinue bottled water. However, a different approach is being developed for wells with increasing trends.
- (c) **Domestic Well Ion-Exchange Systems:** Olin is required to regularly update the RB as to test results on down-sized ion-exchange systems on domestic wells. Currently four systems have been installed and are being monitored by US filter frequently to make sure they are working correctly. The RB requested that Olin provide an update to their Alternative Water Supply Plan, based on

the State Board's decision to required replacement water only for wells above 6 ppb, by July 15, 2005.

- (d) **Cleanup CAO:** 9 wells, about a mile apart of each other down the center of the plume, are proposed in the Monitoring Plan. Mr. Athey emphasized the importance of community input on the characterization report submitted by Olin. If anyone would like to comment contact David Athey at dathey@waterboards.ca.gov
- (e) **Tennant site soil and groundwater update:** Olin is continuing to work with Geosyntech to clean up the source site soil. The ex-situ bioremediation has been successfully completed and the in-situ bioremediation of the entire site is ready for implementation.
- (f) **Northeast Perchlorate Investigation Progress:** 3 piezometer (multi-port) wells have been installed.

2. Legislative Update

- (a) **Perchlorate Legislation** (Craig O'Donnell, district director for Assemblyman John Laird) - Mr. O'Donnell announced that John Laird's office is seeking a legislative solution to allow RWQCB discretion in making judgments related to replacement drinking water. AB 1421 would clarify existing law. The bill states that the 'intent' of existing statute clearly intends that RB's have the authority to determine who should receive replacement water that "shall meet all applicable federal, state and local drinking water standards, and shall have comparable quality to that pumped by the public water system or private well owner prior to the discharge of waste." It clarifies the common law theory of contamination for human consumption; this does not imply that water can be polluted up to the point that is no longer safe. The State Board also expressed that the definition for an affected well is not clear in the water codes. This bill provides definition.
- (b) **Water Supply Legislation** (Sam Weaver, Congressmen Richard Pombo) – Mr. Weaver reported that Congressman Pombo, joined by Congresswoman Ellen O. Tauscher introduced the National Water Supply Enhancement Act, reauthorizing the Water Desalination Act of 1996 and establishing an advanced water supply enhancement program.

IV) Next Meeting

A) Next Meeting **Friday August 5th, 2005 from 2 – 4 pm at the Lions Club Hall**

Meeting was adjourned

Minutes submitted by Zohra Karimi